

CLAIMS

1. A method for preparing a polysuccinimide derivative, which comprises, subjecting the polysuccinimide to a ring-opening reaction.
2. The method of Claim 1, wherein said polysuccinimide is formed by polymerization of L-aspartic acid in a supercritical fluid.
3. The method of Claim 1, wherein said ring-opening reaction is carried out in a supercritical fluid.
4. The method of Claim 1, wherein said ring-opening reaction is carried out subsequently to the formation of polysuccinimide in a supercritical fluid.
5. The method of Claim 1, wherein said ring-opening reaction is carried out in water.
6. The method of Claim 1, wherein said ring-opening reaction is carried out in the presence of an amine.
7. The method of Claim 6, further comprising water as a cosolvent.
8. The method of Claim 7, wherein said amine is a combination of amines.
9. The method of Claim 8, wherein said combination of amines is comprised of ammonium hydroxide and 2-aminoethanol to form a resin.
10. The method of Claim 9, wherein said resin contains a free carboxylic acid salt and the amides of ammonia and aminoethanol.
11. The method of Claim 6, wherein said amine has the general formula: $R_1R_2R_3N$; where R_1 , R_2 , and R_3 are the same or different radicals selected from the group consisting of hydrogen, an alkyl, a substituted alkyl, an alkenyl, an aryl, an aryl-alkyl, and a substituted aryl radical.
12. The method of Claim 11, wherein said alkyl is selected from the group consisting of methyl, ethyl, *n*-propyl, isopropyl, *n*-butyl,

isobutyl, *sec*-butyl, *t*-butyl, *n*-amyl, isoamyl, *t*-amyl, *n*-hexyl, *n*-octyl, capril, *n*-decyl, lauryl, myristyl, cetyl, and stearyl.

13. The method of Claim 11, wherein said substituted alkyl is hydroxyethyl.
14. The method of Claim 11, wherein said alkenyl is allyl.
15. The method of Claim 11, wherein said aryl is phenyl.
16. The method of Claim 11, wherein said aryl-alkyl is benzyl.
17. The method of Claim 11, wherein said substituted aryl radical is selected from the group consisting of alkylphenyl, chlorophenyl and nitrophenyl.
18. The method of Claim 6, wherein said amine is triethanol amine.
19. The method of Claim 6, wherein said amine is selected from the group consisting of aminopyrdine, imidazole and a polyamine.
20. The method of Claim 19, wherein said polyamine is selected from the group consisting of a gelatin, chitin, lysine, ornithine and melamine.
21. The method of Claim 6, wherein said amine is aminoethoxylate.
22. A derivative formed by the method of Claim 1.
23. The method of Claim 2, wherein said polymerization is carried out in the presence of a stabilizer.
24. The method of Claim 23, wherein said stabilizer is selected from the group consisting of a thermal stabilizer, an antioxidant and a mixture thereof.